



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES

William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, Tennessee 37243-1102

June 3, 2014

Mr. Patrick C. Finney, Site Leader  
e-copy: p.finney@hscpoly.com  
Hemlock Semiconductor, L.L.C.  
1000 Solar Way  
Clarksville, TN 37040

Subject: **NPDES Permit No. TN0080888**  
**Hemlock Semiconductor, L.L.C.**  
**Clarksville, Montgomery County, Tennessee**

Dear Mr. Finney:

In accordance with the provisions of the Tennessee Water Quality Control Act, Tennessee Code Annotated (T.C.A.), Sections 69-3-101 through 69-3-120, the Division of Water Resources hereby issues the enclosed NPDES Permit. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application. Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment. Any petition for permit appeal under this subsection (i) shall be filed with the Technical Secretary of the Water Quality, Oil and Gas Board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit. A copy of the filing should also be sent to TDEC's Office of General Counsel.

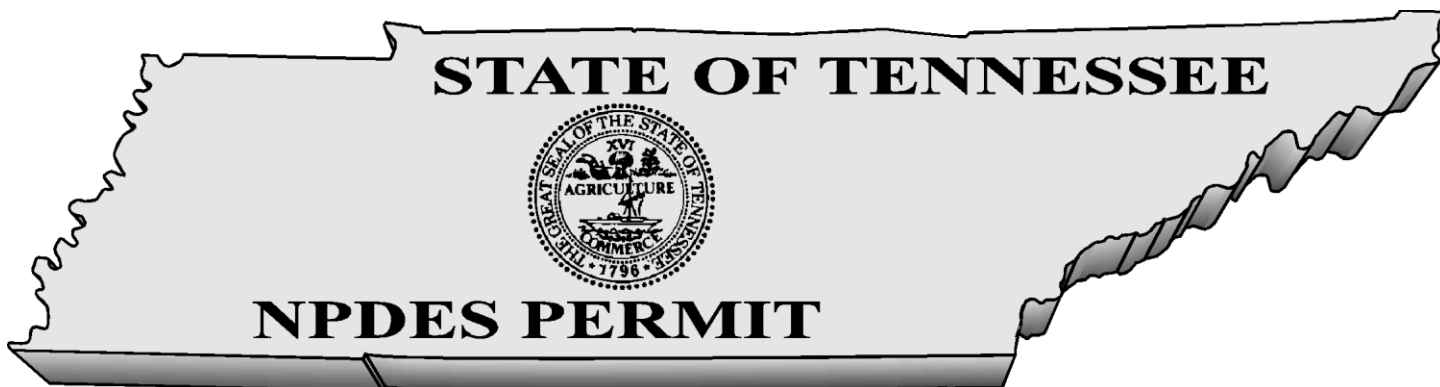
If you have questions, please contact the Nashville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Mr. Jim McAdoo at (615) 532-0684 or by E-mail at *Jim.McAdoo@tn.gov*.

Sincerely,

Vojin Janjic  
Manager, Water-Based Systems

Enclosure

cc: Permit File  
Nashville Environmental Field Office  
NPDES Section, NPDES Permit Section, EPA Region IV, r4npdespermits@epa.gov  
Ms. Dana L. Wright, Director of Policy and Legislative Affairs, Tennessee Clean Water Network, dana@tcwn.org  
Mr. Jason Mennino, Environmental Specialist, Hemlock Semiconductor, L.L.C., jason.mennino@hscpoly.com



**No. TN0080888**

Authorization to discharge under the  
National Pollutant Discharge Elimination System (NPDES)

Issued By

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, Tennessee 37243-1102**

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.)

Discharger: **Hemlock Semiconductor, L.L.C.**

is authorized to discharge: **noncontact cooling water, cooling tower blowdown, finishing and sawing waste waters from 001, storm water discharges from SW1-5 and spray irrigation system**

from a facility located: **in Clarksville, Montgomery County, Tennessee**

to receiving waters named: **Spring Creek at mile 7.9**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on: **July 1, 2014**

This permit shall expire on: **June 30, 2019**

Issuance date: **June 1, 2014**

A handwritten signature in blue ink, appearing to read "S. Dudley", is written over a horizontal line.

for Sandra K. Dudley, Ph.D., P.E.  
Director

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## PART I

### A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Hemlock Semiconductor, L.L.C. (HSC) is authorized to discharge noncontact cooling water, cooling tower blowdown, finishing and sawing wastewater through 001 and storm water discharges through SW1-5 to Spring Creek at mile 7.9.

These discharges shall be limited and monitored by the permittee as specified below:

**Description : External Outfall, Number : 001, Monitoring : Dry Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Nitrite plus nitrate total (as N)	Report	-	lb/d	-	Weekly	Daily Maximum
Nitrite plus nitrate total (as N)	Report	-	mg/L	-	Weekly	Monthly Average
Nitrite plus nitrate total (as N)	Report	-	lb/d	-	Weekly	Monthly Average
Nitrite plus nitrate total (as N)	<=	3.48	mg/L	-	Weekly	Daily Maximum
Phosphorus, total (as P)	Report	-	lb/d	-	Weekly	Daily Maximum
Phosphorus, total (as P)	Report	-	mg/L	-	Weekly	Monthly Average
Phosphorus, total (as P)	Report	-	lb/d	-	Weekly	Monthly Average
Phosphorus, total (as P)	<=	.04	mg/L	-	Weekly	Daily Maximum
Total Dissolved Solids (TDS)	Report	-	mg/L	-	Weekly	Monthly Average
Total Dissolved Solids (TDS)	Report	-	lb/d	-	Weekly	Daily Maximum
Total Dissolved Solids (TDS)	Report	-	lb/d	-	Weekly	Monthly Average
Total Dissolved Solids (TDS)	<=	291	mg/L	-	Weekly	Daily Maximum

**Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Chlorine, total residual (TRC)	<=	.08	mg/L	Grab	Five Per Week	Daily Maximum
Chlorine, total residual (TRC)	<=	.046	mg/L	Grab	Five Per Week	Monthly Average
Flow	Report	-	MGD	Totalizer	Daily	Monthly Average
Flow	Report	-	MGD	Totalizer	Daily	Daily Maximum
Oxygen, dissolved (DO)	<=	1	mg/L	Grab	Five Per Week	Daily Maximum
Temperature, water deg.	Report	-	deg C	Grab	Weekly	Daily Maximum

C

Temperature, water deg. C	Report	-	deg C	Grab	Weekly	Monthly Average
Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Weekly	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Weekly	Monthly Average
pH	>=	6	SU	Grab	Weekly	Minimum
pH	<=	9	SU	Grab	Weekly	Maximum

**Description : External Outfall, Number : 001, Monitoring : See Comments, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Rainfall	Report	-	in	Calculated	Once Per Rain Event	Monthly Total

**Description : External Outfall, Number : 001, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Nitrite plus nitrate total (as N)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Nitrite plus nitrate total (as N)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average
Phosphorus, total (as P)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average
Phosphorus, total (as P)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Total Dissolved Solids (TDS)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Total Dissolved Solids (TDS)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>=	24	%	-	Once Every Permit Cycle	Minimum
IC25 Static Renewal 7 Day Chronic Pimephales	>=	24	%	-	Once Every Permit Cycle	Minimum

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Nitrite plus nitrate total 1 det. (as N)	<=	3945	lb/yr	Calculated	Annual	Total
Phosphorus, total (as P)	<=	2555	lb/yr	Calculated	Annual	Total

**Description : External Outfalls, SW1, SW2, SW3, SW4, SW5, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Floating solids or visible foam-visual	Report	-	Y=1;N=0	Visual	Once Per Rain Event	Daily Maximum

Effluent Limits and Monitoring Notes:

- 1 pH and TRC analyses shall be performed within fifteen minutes of sample collection.
- 2 The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit limit.
- 3 Measurements taken to meet the 5 Days/Week measurement frequency requirement shall be taken when facility is operational. If the facility shuts down operation for any given day for purposes other than cleaning, equipment maintenance/upgrades, etc. sampling on those days will not satisfy the requirements of this permit.
- 4 Flow shall be reported in Million Gallons per Day (MGD).
- 5 Discharges of nitrite plus nitrate, phosphorus and total dissolved solids effluent characteristic occurring on days without a qualifying storm event (see subpart I.C. for definition) must meet the calculated de minimis daily maximum concentration. Discharges released within 12 hours following a qualifying storm event must be monitored to determine the total loading discharged for each qualifying storm event. Total yearly loadings are the summation of the qualifying storm events plus the loadings from daily dry weather discharges and shall not exceed the effluent limitations provided in this table.
- 6 See subpart III.E. of this permit for Biomonitoring Requirements.

Additional monitoring requirements and conditions applicable to Outfall 001 include:

There shall be no distinctly visible floating solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life.

The wastewater discharge shall not contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

Sludge or any other material removed by any treatment works must be disposed of in a manner, which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA 68-31-101 et seq. and the Tennessee Hazardous Waste Management Act, TCA 68-46-101 et seq.

NOTE: For the monitoring and reporting of measurements of FLOW, the "Monthly Avg." shall be the total flow volume during the reporting period divided by the number of calendar days in that period. The "Daily Max." shall be the total flow volume for the day with the greatest amount of discharge during the reporting period. Example: 3 discharges of 15,000 gallons/day and 1 discharge of 20,000 gallons/day during a 1-month period results in a Monthly Avg. of 65,000 gallons/30 days, or 2,166 gallons/day (to be reported as 0.002166 MGD). The Daily Maximum to be reported for this example is 20,000 gallons/day or 0.020 MGD.



## **B. MONITORING PROCEDURES**

### **1. Representative Sampling**

Samples and measurements taken in compliance with the monitoring requirements specified herein shall be representative of the volume and nature of the monitored discharge, and shall be taken after treatment and prior to mixing with uncontaminated storm water runoff or the receiving stream.

### **2. Sampling Frequency**

If there is a discharge from a permitted outfall on any given day during the monitoring period, the permittee must sample and report the results of analyses accordingly, and the permittee should not mark the 'No Discharge' box on the Discharge Monitoring Report form.

### **3. Test Procedures**

- a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.
- b. Unless otherwise noted in the permit, all pollutant parameters shall be determined according to methods prescribed in Title 40, CFR Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act.

### **4. Recording of Results**

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling;
- b. The exact person(s) collecting samples;
- c. The dates and times the analyses were performed;
- d. The person(s) or laboratory who performed the analyses;
- e. The analytical techniques or methods used, and;
- f. The results of all required analyses.

### **5. Records Retention**

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation shall be retained for a minimum of three (3) years, or longer, if requested by the Division of Water Resources.

### **C. OPERATION OF SPRAY/DRIP IRRIGATION SYSTEM**

In accordance with the provision of Tennessee Code Annotated section 69-3-108 and Regulations promulgated pursuant thereto:

#### **PERMISSION IS HEREBY GRANTED TO**

Hemlock Semiconductor, L.L.C.  
Clarksville, Montgomery County, Tennessee

#### **FOR THE OPERATION OF**

a spray/drip irrigation system, with filtering as needed to remove solids, for the monthly average disposal of approximately 600,000 gpd of non-contact cooling water, boiler blowdown, finishing and sawing wastewaters on up to 92 acres at the facility site located at latitude 36.624599 and longitude -87.261980 in Montgomery County, Tennessee.

This permit is issued as a result of the application filed on February 4, 2014, in the office of the Tennessee Division of Water Resources and in conformity with approved plans, specifications and other data submitted to the department in support of the above application, all of which are filed with and considered as a part of this permit, together with the following named conditions and requirements.

#### **1. General Requirements**

The treatment system shall be monitored by the permittee as specified below:

<u>Parameter</u>	<u>Sample Type</u>	<u>Daily Maximum</u>	<u>Sampling Point</u>	<u>Measurement Frequency</u>
Flow	Totalizer		*	**

\*Effluent to the drip/spray irrigation plots.

\*\*Report average daily flow for each calendar month. See Part D below for reporting requirements.

This permit allows the operation of a wastewater drip and/or spray irrigation system. There shall be no wastewater ponding or pools on the surface of the disposal field as a result of improper application or irrigation of wastewater except in direct response to precipitation. There shall be no discharge of wastewater to any surface stream or any location where it is likely to enter surface waters. There shall be no discharge of wastewater to any open throat sinkhole. In addition, the drip/spray irrigation system shall be operated in a manner preventing the creation of a health hazard or a nuisance.

Instances of ponding or pools under dry weather conditions shall be promptly investigated and remedied. Instances of ponding or pools, or any wastewater runoff shall be noted on the monthly

operation report. The report shall include details regarding the location(s), determined cause(s), the actions taken to eliminate the ponding or pools, or any wastewater runoff, and the dates the corrective actions were made. Any wastewater runoff due to improper operation must be reported in writing to the Division of Water Reassures, Environmental Field Office – Nashville within 5 days of discovery by the permittee.

All drip lines shall be buried and maintained 6 to 10 inches below the ground surface.

All spray nozzles shall be configured to provide optimum utilization of the spray areas.

The key to successful land application operation is well drained soil. Since saturated and frozen soils cannot maintain adequate infiltration capacity, the spray irrigation system shall not be operated when the ground is frozen or saturated from rainfall or flooding.

The spray irrigation system shall be operated with sufficient buffers or barriers to prevent surface runoff of irrigation water into waters of the state via swells, wet weather conveyances, unnamed tributaries or any other means.

A minimum of 30 days of storage capacity or alternative discharge method, in this case discharging to the local POTW is required unless disposal capacity associated with the actual production rate is maintained via drip irrigation and/or spray irrigation and/or NPDES authorized direct discharge in any combination.

The site shall be inspected by the permittee, at a minimum, once per fourteen days. The following shall be recorded for each inspection and reported on the quarterly operating report:

- The condition of the drip/spray area security controls (doors, fencing, gates, etc.),
- The condition of the site signage,
- The condition of the drip/spray lines under pressure,
- The condition of the drip/spray area including the location of any ponding and the condition of the vegetative cover,
- The condition of the mechanical parts of the treatment system (pumps, filters, telemetry equipment, etc.)
- The date and time of inspection,
- The name of the inspector,
- The description of any corrective actions taken.

## **2. Monitoring Procedures**

### **a. Representative Sample**

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge, and shall be taken at the following location(s):

Effluent to drip/spray irrigation plots.

b. Noncompliance

Noncompliance with the no discharge provision of this permit due to excessive rainfall, equipment failure, etc., must be reported within 24 hours to the Environmental Assistance Center - Nashville by telephone. A written submission must be provided within five days. These reports shall also be filed with the Environmental Assistance Center - Nashville.

**3. Reporting**

a. Monitoring Results

Monitoring results shall be recorded monthly and submitted quarterly. Submittals shall be postmarked no later than 15 days after the completion of the reporting period. A copy should be retained for the permittee's files. Operation reports and any communication regarding compliance with the conditions of this permit must be sent to:

Division of Water Resources  
Nashville Environmental Field Office  
711 R.S. Gass Boulevard  
Nashville, TN 37243

The first operation report is due on the 15<sup>th</sup> of the month following permit effectiveness

b. Additional Reporting

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified in 1200-4-5-.07(4)(h)2, the results of such monitoring shall be included in the calculation and reporting of the values required in the Quarterly Operation Report. Such increased frequency shall also be indicated.

c. Falsifying Reports

Knowingly making any false statement on any report required by this permit may result in the imposition of criminal penalties as provided for in Section 69-3-115 of the Tennessee Water Quality Control Act.

**4. Underground Injection Control Authorization - associated with the drip irrigation disposal**

**MEMORANDUM**

TO: Jim McAdoo, DWR-CO

FROM: Allen Rather, DWR- Ground Water Management Section

DATE: 3/11/2014

SUBJECT: LCSS/SFDS (Class V Injection) Approval  
Hemlock Semi-Conductors  
Clarksville, Montgomery County, Tennessee  
UIC File MTG 0000300 NPDES TN 0080888

The Division of Water Resources has reviewed the submittal of an Application for Authorization to Operate a Class V Underground Injection Well (Large Capacity Septic System/Subsurface Fluid Disposal System) utilizing conventional disposal for the waste water at the Hemlock Semi-Conductors located at Clarksville, Montgomery County, Tennessee. This Division approves the application dated 3/10/2014.

If at any time the Division learns that a ground water discharge system may be in violation of The Tennessee Water Quality Control Act, the Division shall:

- a. require the injector to apply for an individual permit;
- b. order the injector to take such actions including, where required, closure of the injection well as may be necessary to prevent the violation; or
- c. take enforcement action.

All groundwater discharge activities must operate in such a manner that they do not present a hazard to groundwater.

Hemlock Semi-Conductors shall also conduct a monthly visual inspection of the complete drip field looking for any signs of failure.

In accordance with Underground Injection Control (UIC) Rule 1200-4-6-.14 (3) "The owner of a Class V well shall be responsible for notifying the Department of change in ownership." This notification must be made to this Division within thirty (30) days of the change in ownership.

Also note that according to Underground Injection Control (UIC) Rule 1200-4-6-.14 (8)(d) "Upon completion of the well, the owner or operator must certify to the Department that the well has been completed in accordance with the approved construction plan, and must submit any other additional information required". The certification must be submitted to the UIC Program within thirty (30) days upon the completion/closure of the Class V well.

This Division will require a minimum of seven (7) working days advance notice before the construction on the drip system is to begin to allow for a witness from this Division to be present.

No drip emitters are to discharge directly into an open throat or crevice in the subsurface. All drip lines are to be installed on contour.

Our concurrence with your approach does not imply that this procedure is exempt from future changes or restrictions in the Underground Injection Control (UIC) Regulations, or any additional requirements set forth by the Division in order to protect the groundwater of Tennessee.

A copy of this authorization must be kept on site until the development has been completed and must be made available to inspection personnel.

Should you have any questions or comments please feel free to contact me at (615) 532-5819 or [allen.rather@tn.gov](mailto:allen.rather@tn.gov).

## **5. Schedule of Compliance**

Full operational level shall be attained from the effective date of this permit.

## **6. Placement of Signs**

Signs shall be posted at regular intervals around the perimeter of the drip/spray disposal areas, and at each entrance. The recommended perimeter distance between any two (2) signs should not exceed one hundred fifty feet on sides adjoining or facing neighboring properties. The sign language shall clearly indicate that the drip/spray areas are being used for the dispersal of wastewater. The minimum sign size should be two feet by two feet (2' x 2') with letters not less than two inches (2") high. Each sign shall be made of durable material and have a white background with black letters.

<p><b>INDUSTRIAL WASTEWATER DRIP/SPRAY IRRIGATED PLOTS HEMLOCK SEMICONDUCTOR, LLC (PERMITTEE'S PHONE NUMBER) TENNESSEE DIVISION OF WATER RESOURCES NASHVILLE ENVIRONMENTAL FIELD OFFICE PHONE NUMBER: 1-888-891-8332</b></p>
--

Prior to operation of the drip/spray irrigation system the permittee shall have the above sign(s) on display in the location specified.

## **D. DEFINITIONS**

For the purpose of this permit, **Annually** is defined as a monitoring frequency of once every twelve (12) months beginning with the date of issuance of this permit so long as the following set of measurements for a given 12 month period are made approximately 12 months subsequent to that time.

**Annual loading** shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the annual reporting period when the measurements were made.

A **bypass** is defined as the intentional diversion of waste streams from any portion of a treatment facility.

A **calendar day** is defined as the 24-hour period from midnight to midnight or any other 24-hour period that reasonably approximates the midnight to midnight time period.

For the purposes of this permit, a **Composite Sample** for non-storm water discharges is a sample collected continuously over a period of 24-hours at a rate proportional to the flow.

The **Daily Maximum Amount**, is a limitation measured in pounds per day (lb/day), on the total amount of any pollutant in the discharge by weight during any calendar day.

The **Daily Maximum Concentration** is a limitation on the average concentration, in milligrams per liter (mg/L), of the discharge during any calendar day. When a proportional-to-flow composite sampling device is used, the daily concentration is the concentration of that 24-hour composite; when other sampling means are used, the daily concentration is the arithmetic mean of the concentrations of equal volume samples collected during any calendar day or sampling period.

**Degradation** means the alteration of the properties of waters by the addition of pollutants or removal of habitat.

**De Minimis** – Alterations, other than those resulting in the condition of pollution or new domestic wastewater discharges, that represent either a small magnitude or a short duration shall be considered a *de minimis* impact and will not be considered degradation for purposes of implementing the antidegradation policy. Discharges other than domestic wastewater will be considered *de minimis* if they are temporary or use less than five percent of the available assimilative capacity for the substance being discharged. If more than one activity has been authorized in a segment and the total of the impacts uses no more than ten percent of the assimilative capacity, available habitat, or 7Q10 low flow, they are presumed to be *de minimis*. Where total impacts use more than ten percent of the assimilative capacity, available habitat, or 7Q10 low flow they may be treated as *de minimis* provided that the division finds on a scientific basis that the additional degradation has an insignificant effect on the resource and that no single activity is allowed to consume more than five percent of the assimilative capacity, available habitat or 7Q10 low flow.

**Discharge** or “discharge of a pollutant” refers to the addition of pollutants to waters from a source.

**Dry Weather Flow** shall be construed to represent discharges consisting of process and/or non-process wastewater only.

An **ecoregion** is a relatively homogeneous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

The **geometric mean** of any set of values is the  $n^{\text{th}}$  root of the product of the individual values where “n” is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For the purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

A **Grab Sample**, for the purposes of this permit, is defined as a single effluent sample of at least 100 milliliters (sample volumes <100 milliliters are allowed when specified per standard methods, latest edition) collected at a randomly selected time over a period not exceeding 15 minutes. The sample(s) shall be collected at the period(s) most representative of the total discharge.

The **Instantaneous Concentration** is a limitation on the concentration, in milligrams per liter (mg/L), of any pollutant contained in the discharge determined from a grab sample taken at any point in time.

The **monthly average amount**, shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

The **monthly average concentration**, other than for *E. coli* bacteria, is the arithmetic mean of all the composite or grab samples collected in a one-calendar month period.

A **one week period** (or **calendar-week**) is defined as the period from Sunday through Saturday. For reporting purposes, a calendar week that contains a change of month shall be considered part of the latter month.

**Pollutant** means sewage, industrial wastes, or other wastes.

A **Qualifying Storm Event** is one which is greater than 0.1 inches and that occurs after a period of at least 72 hours after any previous storm event with rainfall of 0.1 inches or greater.

For the purpose of this permit, a **Quarter** is defined as any one of the following three month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, or October 1 through December 31.

A **rainfall event** is defined as any occurrence of rain, preceded by 10 hours without precipitation that results in an accumulation of 0.01 inches or more. Instances of rainfall occurring within 10 hours of each other will be considered a single rainfall event.

A **rationale** (or “fact sheet”) is a document that is prepared when drafting an NPDES permit or permit action. It provides the technical, regulatory and administrative basis for an agency’s permit decision.

A **reference site** means least impacted waters within an ecoregion that have been monitored to establish a baseline to which alterations of other waters can be compared.



A **reference condition** is a parameter-specific set of data from regional reference sites that establish the statistical range of values for that particular substance at least-impacted streams.

For the purpose of this permit, **Semi-annually** means the same as "once every six months." Measurements of the effluent characteristics concentrations may be made anytime during a 6 month period beginning from the issuance date of this permit so long as the second set of measurements for a given 12 month period are made approximately 6 months subsequent to that time, if feasible.

A **subecoregion** is a smaller, more homogenous area that has been delineated within an ecoregion.

**Upset** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

The term, **washout** is applicable to activated sludge plants and is defined as loss of mixed liquor suspended solids (MLSS) of 30.00% or more from the aeration basin(s).

**Waters** means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

The **weekly average amount**, shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar week when the measurements were made.

The **weekly average concentration**, is the arithmetic mean of all the composite samples collected in a one-week period. The permittee must report the highest weekly average in the one-month period.

**Wet Weather Flow** shall be construed to represent storm water runoff which, in combination with all process and/or non-process wastewater discharges, as applicable, is discharged during a qualifying storm event.

## E. ACRONYMS AND ABBREVIATIONS

1Q10 – 1-day minimum, 10-year recurrence interval  
30Q20 – 30-day minimum, 20-year recurrence interval  
7Q10 – 7-day minimum, 10-year recurrence interval  
BAT – best available technology economically achievable  
BCT – best conventional pollutant control technology

BDL – below detection level  
BOD<sub>5</sub> – five day biochemical oxygen demand  
BPT – best practicable control technology currently available  
CBOD<sub>5</sub> – five day carbonaceous biochemical oxygen demand  
CEI – compliance evaluation inspection  
CFR – code of federal regulations  
CFS – cubic feet per second  
CFU – colony forming units  
CIU – categorical industrial user  
CSO – combined sewer overflow  
DMR – discharge monitoring report  
D.O. – dissolved oxygen  
*E. coli* – *Escherichia coli*  
EFO – environmental field office  
LB(lb) - pound  
IC<sub>25</sub> – inhibition concentration causing 25% reduction in survival, reproduction and growth of the test organisms  
IU – industrial user  
IWS – industrial waste survey  
LC<sub>50</sub> – acute test causing 50% lethality  
MDL – method detection level  
MGD – million gallons per day  
MG/L(mg/l) – milligrams per liter  
ML – minimum level of quantification  
ml – milliliter  
MLSS – mixed liquor suspended solids  
MOR – monthly operating report  
NODI – no discharge  
NOEC – no observed effect concentration  
NPDES – national pollutant discharge elimination system  
PL – permit limit  
POTW – publicly owned treatment works  
RDL – required detection limit  
SAR – semi-annual [pretreatment program] report  
SIU – significant industrial user  
SSO – sanitary sewer overflow  
STP – sewage treatment plant  
TCA – Tennessee code annotated  
TDEC – Tennessee Department of Environment and Conservation  
TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation  
TMDL – total maximum daily load  
TRC – total residual chlorine  
TSS – total suspended solids  
WQBEL – water quality based effluent limit

## **F. REPORTING**

### **1. Monitoring Results**

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Report (DMR) forms supplied by the Division of Water Resources. Submittals shall be postmarked no later than 15 days after the completion of the reporting period. A completed DMR with an original signature shall be submitted to the following address:

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
COMPLIANCE & ENFORCEMENT SECTION  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243-1102**

A copy of the completed and signed DMR shall be mailed to the Nashville Environmental Field Office (EFO) at the following address:

**STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES  
Nashville Environmental Field Office  
711 R.S. Gass Boulevard  
Nashville, Tennessee 37243**

A copy should be retained for the permittee's files. In addition, any communication regarding compliance with the conditions of this permit must be sent to the two offices listed above.

The first DMR is due on the 15th of the month following permit effectiveness.

DMRs and any other information or report must be signed and certified by a responsible corporate officer as defined in 40 CFR 122.22, a general partner or proprietor, or a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

The electronic submission of DMR data will be accepted only if formally approved beforehand by the division. For purposes of determining compliance with this permit, data approved by the division to be submitted electronically is legally equivalent to data submitted on signed and certified DMR forms.

## **2. Additional Monitoring by Permittee**

If the permittee monitors any pollutant specifically limited by this permit more frequently than required at the location(s) designated, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form. Such increased frequency shall also be indicated on the form.

## **3. Falsifying Results and/or Reports**

Knowingly making any false statement on any report required by this permit or falsifying any result may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended, and in Section 69-3-115 of the Tennessee Water Quality Control Act.

## **4. Outlier Data**

Outlier data include analytical results that are probably false. The validity of results is based on operational knowledge and a properly implemented quality assurance program. False results may include laboratory artifacts, potential sample tampering, broken or suspect sample containers, sample contamination or similar demonstrated quality control flaw.

Outlier data are identified through a properly implemented quality assurance program, and according to ASTM standards (e.g. Grubbs Test, 'h' and 'k' statistics). Furthermore, outliers should be verified, corrected, or removed, based on further inquiries into the matter. If an outlier was verified (through repeated testing and/or analysis), it should remain in the preliminary data set. If an outlier resulted from a transcription or similar clerical error, it should be corrected and subsequently reported.

Therefore, only if an outlier was associated with problems in the collection or analysis of the samples and as such does not conform with the Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR §136), it can be removed from the data set and not reported on the Discharge Monitoring Report forms (DMRs). Otherwise, all results (including monitoring of pollutants more frequently than required at the location(s) designated, using approved analytical methods as specified in the permit) should be included in the calculation and reporting of the values required in the DMR form. You are encouraged to use "comment" section of the DMR form (or attach additional pages), in order to explain any potential outliers or dubious results.

## **G. SCHEDULE OF COMPLIANCE**

Full compliance and operational levels shall be attained from the effective date of this permit.

## **PART II**

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### **A. GENERAL PROVISIONS**

#### **1. Duty to Reapply**

Permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director of the Division of Water Resources (the "Director") no later than 180 days prior to the expiration date. Such applications must be properly signed and certified.

#### **2. Right of Entry**

The permittee shall allow the Director, the Regional Administrator of the U.S. Environmental Protection Agency, or their authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;
- b. To inspect at reasonable times any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit; and
- c. To sample at reasonable times any discharge of pollutants.

#### **3. Availability of Reports**

Except for data determined to be confidential under Section 308 of the Federal Water Pollution Control Act, as amended, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Water Resources. As required by the Federal Act, effluent data shall not be considered confidential.

#### **4. Proper Operation and Maintenance**

- a. The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.

- b. Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT and/or other technology-based effluent limitations such as those in State of Tennessee Rule 1200-4-5-.09.

#### **5. Treatment Facility Failure**

The permittee, in order to maintain compliance with this permit, shall control production, all discharges, or both, upon reduction, loss, or failure of the treatment facility, until the facility is restored or an alternative method of treatment is provided. This requirement applies in such situations as the reduction, loss, or failure of the primary source of power.

#### **6. Property Rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

#### **7. Severability**

The provisions of this permit are severable. If any provision of this permit due to any circumstance, is held invalid, then the application of such provision to other circumstances and to the remainder of this permit shall not be affected thereby.

#### **8. Other Information**

If the permittee becomes aware that he failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, then he shall promptly submit such facts or information.

### **B. CHANGES AFFECTING THE PERMIT**

#### **1. Planned Changes**

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1).

## **2. Permit Modification, Revocation, or Termination**

- a. This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR 122.62 and 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended.
- b. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- c. If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the Director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit on the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.
- d. The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.

## **3. Change of Ownership**

This permit may be transferred to another party (provided there are neither modifications to the facility or its operations, nor any other changes which might affect the permit limits and conditions contained in the permit) by the permittee if:

- a. The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and
- c. The Director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Pursuant to the requirements of 40 CFR 122.61, concerning transfer of ownership, the permittee must provide the following information to the division in their formal notice of intent to transfer ownership: 1) the NPDES permit number of the subject permit; 2) the effective date of the proposed transfer; 3) the name and address of the transferor; 4) the name and address of the transferee; 5) the names of the responsible parties for both the transferor and transferee; 6) a statement that the transferee assumes responsibility for the subject NPDES permit; 7) a statement that the transferor relinquishes responsibility for the subject NPDES permit; 8) the

signatures of the responsible parties for both the transferor and transferee pursuant to the requirements of 40 CFR 122.22(a), "Signatories to permit applications"; and, 9) a statement regarding any proposed modifications to the facility, its operations, or any other changes which might affect the permit limits and conditions contained in the permit.

#### **4. Change of Mailing Address**

The permittee shall promptly provide to the Director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

### **C. NONCOMPLIANCE**

#### **1. Effect of Noncompliance**

All discharges shall be consistent with the terms and conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

#### **2. Reporting of Noncompliance**

##### **a. 24-Hour Reporting**

In the case of any noncompliance which could cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the Division of Water Resources in the appropriate regional Field Office within 24-hours from the time the permittee becomes aware of the circumstances. (The regional Field Office should be contacted for names and phone numbers of environmental response personnel).

A written submission must be provided within five calendar days of the time the permittee becomes aware of the circumstances, unless this requirement is waived by the Director on a case-by-case basis. The permittee shall provide the Director with the following information:

- i. A description of the discharge and cause of noncompliance;
- ii. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
- iii. The steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

##### **b. Scheduled Reporting**

For instances of noncompliance which are not reported under subparagraph 2.a. above, the permittee shall report the noncompliance on the Discharge Monitoring



Report. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

### **3. Sanitary Sewer Overflow**

- a. **"Sanitary Sewer Overflow"** means the discharge to land or water of wastes from any portion of the collection, transmission, or treatment system other than through permitted outfalls.
- b. Sanitary Sewer Overflows are prohibited.
- c. The permittee shall operate the collection system so as to avoid sanitary sewer overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic sanitary sewer overflows (greater than 5 events per year) or would otherwise overload any portion of the system.
- d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the regional TDEC Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.
- e. In the event that more than five (5) sanitary sewer overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Resources field office staff to petition for a waiver based on mitigating evidence.

### **4. Upset**

- a. **"Upset"** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- i. An upset occurred and that the permittee can identify the cause(s) of the upset;
- ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
- iii. The permittee submitted information required under "Reporting of Noncompliance" within 24-hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
- iv. The permittee complied with any remedial measures required under "Adverse Impact."

## **5. Adverse Impact**

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

## **6. Bypass**

- a. "**Bypass**" is the intentional diversion of wastewater away from any portion of a treatment facility. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses are prohibited unless the following 3 conditions are met:
  - i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
  - ii. There are not feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down-time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment down-time or preventative maintenance;
  - iii. The permittee submits notice of an unanticipated bypass to the Division of Water Resources in the appropriate environmental assistance center within 24-hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be

submitted to the Director, if possible, at least 10 days before the date of the bypass.

- c. Bypasses not exceeding limitations are allowed **only** if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 6.b.iii, above.

## **7. Washout**

- a. For domestic wastewater plants only, a "washout" shall be defined as loss of Mixed Liquor Suspended Solids (MLSS) of 30.00% or more. This refers to the MLSS in the aeration basin(s) only. This does not include MLSS decrease due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to infiltration and inflow.
- b. A washout is prohibited. If a washout occurs the permittee must report the incident to the Division of Water Resources in the appropriate regional Field Office within 24-hours by telephone. A written submission must be provided within 5 days. The washout must be noted on the discharge monitoring report. Each day of a washout is a separate violation.

## **D. LIABILITIES**

### **1. Civil and Criminal Liability**

Except as provided in permit conditions for "**Bypass**," "**Overflow**," and "**Upset**," nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this Permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

### **2. Liability Under State Law**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or the Federal Water Pollution Control Act, as amended.

## PART III

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### OTHER REQUIREMENTS

#### A. TOXIC POLLUTANTS

The permittee shall notify the Division of Water Resources as soon as it knows or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic substance(s) (listed at 40 CFR 122, Appendix D, Table II and III) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - a. One hundred micrograms per liter (100 ug/l);
  - b. Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  - c. Five (5) times the maximum concentration value reported for that pollutant(s) in the permit application in accordance with 122.21(g)(7); or
  - d. The level established by the Director in accordance with 122.44(f).
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - a. Five hundred micrograms per liter (500 ug/l);
  - b. One milligram per liter (1 mg/L) for antimony;
  - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 122.21(g)(7); or
  - d. The level established by the Director in accordance with 122.44(f).

#### B. REOPENER CLAUSE

If an applicable standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(B)(2), and 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked and reissued to conform to that effluent standard or limitation.

As per subpart III.F below, the division will perform a reasonable potential analysis on the monitoring results submitted to the division. At that time, should the results so dictate, the division maintains the authority to institute specific numeric limitations for the monitored parameters or other appropriate control measures. Permit modification or revocation and reissuance shall follow standard permitting procedures as shown in TDEC Rule 0400-40-5.

### **C. PLACEMENT OF SIGNS**

The permittee shall place and maintain a sign(s) at each outfall and any bypass/overflow point in the collection system. For the purposes of this requirement, any bypass/overflow point that has discharged five (5) or more times in the last year must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream or from the nearest public property/right-of-way, if applicable. The minimum sign size should be two feet by two feet (2' x 2') with one inch (1") letters. The sign should be made of durable material and have a white background with black letters.

The sign(s) are to provide notice to the public as to the nature of the discharge and, in the case of the permitted outfalls, that the discharge is regulated by the Tennessee Department of Environment and Conservation, Division of Water Resources. The following is given as an example of the minimal amount of information that must be included on the sign:

**TREATED INDUSTRIAL WASTEWATER  
HEMLOCK SEMICONDUCTOR, L.L.C. (HSC)  
(PERMITTEE'S PHONE NUMBER)  
NPDES Permit NO. TN0080888  
TENNESSEE DIVISION OF WATER RESOURCES  
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - NASHVILLE**

**INDUSTRIAL STORM WATER RUNOFF  
HEMLOCK SEMICONDUCTOR, L.L.C. (HSC)  
(PERMITTEE'S PHONE NUMBER)  
NPDES Permit NO. TN0080888  
TENNESSEE DIVISION OF WATER RESOURCES  
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - NASHVILLE**

### **D. ANTIDEGRADATION**

Pursuant to the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06, titled "Tennessee Antidegradation Statement," which prohibits the degradation of high quality surface waters and the increased discharges of substances that cause or contribute to impairment, the permittee shall further be required, pursuant to the terms and conditions of this permit, to comply with the effluent limitations and schedules of compliance required to implement applicable water quality standards, to comply with a State Water Quality Plan or other state or federal laws or regulations, or where practicable, to comply with a standard permitting no discharge of pollutants.

## E. BIOMONITORING REQUIREMENTS, CHRONIC

The permittee shall conduct a 3-Brood *Ceriodaphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on the same samples of final effluent from Outfall 001.

The measured endpoint for toxicity will be the inhibition concentration causing 25% reduction (IC25) in survival, reproduction, or growth of the test organisms. The IC25 shall be determined based on a 25% reduction as compared to the controls. The average reproduction and growth responses will be determined based on the number of *Ceriodaphnia dubia* or *Pimephales promelas* larvae used to initiate the test.

Test shall be conducted and its results reported based on appropriate replicates of a total of five serial dilutions and a control, using the percent effluent dilutions as presented in the following table:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
4 X PL	2 X PL	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
% effluent					
96	48	24	12	6	0

The dilution/control water used will be a moderately hard water as described in [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms](#), EPA-821-R-02-013 (or the most current edition). Results from a chronic standard reference toxicant quality assurance test for each species tested shall be submitted with the discharge monitoring report. Reference toxicant tests shall be conducted as required in EPA-821-R-02-013 (or the most current edition). Additionally, the analysis of this multi-concentration test shall include review of the concentration-response relationship to ensure that calculated test results are interpreted appropriately.

Toxicity will be demonstrated if the IC25 is less than or equal to the permit limit indicated for each outfall in the above table(s). Toxicity demonstrated by the tests specified herein constitutes a violation of this permit.

All tests will be conducted using a minimum of three 24-hour flow-proportionate composite samples of final effluent (e.g., collected on days 1, 3 and 5). If, in any control more than 20% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within 30 days of the date the initial test is invalidated. Furthermore, if the results do not meet the acceptability criteria of section 4.9.1, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

The toxicity tests specified herein shall be conducted once, within 180 days of effective date of this permit and polysilicon production at the facility. If the effluent does not exhibit any toxicity during the first test, WET testing will not be required during the term of this permit. If the WET testing does show toxicity of the effluent, toxicity tests specified herein shall be conducted annually from thereon for the duration of the permit.

**In the event of a test failure**, the permittee must start a follow-up test within 2 weeks and submit results from a follow-up test within 30 days from obtaining initial WET testing results. The follow-up test must be conducted using the same serial dilutions as presented in the corresponding table(s) above. **The follow-up test will not negate an initial failed test. In addition, the failure of a follow-up test will constitute a separate permit violation which must also be reported.**

In the event of 2 consecutive test failures or 3 test failures within a 12 month period for the same outfall, the permittee must initiate a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) study within 30 days and so notify the division by letter. This notification shall include a schedule of activities for the initial investigation of that outfall. **During the term of the TIE/TRE study, the frequency of biomonitoring shall be once every three months.** Additionally, the permittee shall submit progress reports once every three months throughout the term of the TIE/TRE study. The toxicity must be reduced to allowable limits for that outfall within 2 years of initiation of the TIE/TRE study. Subsequent to the results obtained from the TIE/TRE studies, the permittee may request an extension of the TIE/TRE study period if necessary to conduct further analyses. The final determination of any extension period will be made at the discretion of the division.

The TIE/TRE study may be terminated at any time upon the completion and submission of 2 consecutive tests (for the same outfall) demonstrating compliance. Following the completion of TIE/TRE study, the frequency of monitoring will return to a regular schedule, as defined previously in this section as well in Part I of the permit. **During the course of the TIE/TRE study, the permittee will continue to conduct toxicity testing of the outfall being investigated at the frequency of once every three months but will not be required to perform follow-up tests for that outfall during the period of TIE/TRE study.**

Test procedures, quality assurance practices, determinations of effluent survival/reproduction and survival/growth values, and report formats will be made in accordance with [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms](#), EPA-821-R-02-013, or the most current edition.

Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analyses shall be compiled in a report. The report will be written in accordance with [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms](#), EPA-821-R-02-013, or the most current edition.

Two copies of biomonitoring reports (including follow-up reports) shall be submitted to the division. One copy of the report shall be submitted along with the discharge monitoring report (DMR). The second copy shall be submitted to the local Division of Water Resources office address:

**Environmental Field Office - Nashville  
Division of Water Resources  
711 R.S. Gass Boulevard  
Nashville, TN 37243**

**F. PRIORITY POLLUTANTS**

Within two years from the effective date on the title page of this permit, the permittee shall submit to the Division of Water Resources parts V and VI from Application Form 2C - Wastewater Discharge Information, Consolidated Permits Program (EPA Form 3510-2C). The submittal of this information is required in the instructions of EPA Application Form 2D – New Source and New Dischargers and per 40 CFR 122.21(k)(5)(vi). Note that portions of Item V requiring tests which have already been performed and reported under the discharge monitoring requirements of this NPDES permit are not required to be completed. Upon receipt of this information, the division will perform a reasonable potential analysis to determine if this permit needs modified in response to the results of the required testing.

**G. BIOLOGICAL MONITORING**

The permittee shall develop and implement a biological monitoring plan to define the biological impact of its storm water discharges on the receiving stream(s). To complete this, monitoring will be required to determine the biological integrity and diversity of the receiving streams, pursuant to the relevant Tennessee Water Quality Criteria for those streams. Specifically, this permit requires assessment of the biological integrity of the receiving streams in accordance with the Tennessee Water Quality Criteria for all streams classified for Fish and Aquatic life per Rule 0400-40-3-.03(k). The receiving stream of interest is located in Bioregion 71e, known as the Western Pennyroyal Karst Basin.

The permittee must perform stream monitoring as specified below. Adherence by the permittee or its consultant at the time of the assessment to any modifications of these specified procedures recommended in writing by either division biologists or division permit or assessment staff shall not be construed as a violation of this part.

Pursuant to the permittee's coordination with the division's Nashville Environmental Field Office (EFO) regarding sampling location(s) and timing, the permittee shall within 90 days from the effective date of the permit, submit a monitoring plan to the division central office permit section for review and comment in coordination with its field biologists. The permittee shall proceed with its plan if no written comments are received on the plan within 60 days of its receipt by the division.

Reports of the final results at minimum will include the raw data, taxa lists, and biometric calculations. Final study reports shall be submitted to two locations: 1) WPC central office along with a DMR, 2) WPC Nashville EFO along with an MOR prior to submission of a permit application.



## **1. Frequency**

Biological monitoring shall be conducted once during each 5-year permit cycle, samples collected during low flow, high temperature conditions. (Exceptions are for specific streams that are dry in low flow). For intermittent or batch discharges, sampling should take place within 30 days of discharge in lowest flow conditions.

Biological monitoring is only required when the permittee has had six or more discharges through Outfall 001 to the receiving stream in the preceding November-March period.

## **2. Location**

Biological monitoring is required at one location, downstream from Outfall 001. The site selected must provide appropriate riffle habitat. Prior to sampling, the selected sampling point shall be marked on a topographical map, submitted to and approved by the EFO.

## **3. Sampling**

The survey will be conducted by a qualified biologist. The permittee will notify the appropriate EFO, Division of Water Resources, at least two weeks prior to conducting the biological survey.

The biosurvey will consist of a single habitat semi-quantitative macroinvertebrate sample and a habitat survey. Habitat assessments, sample collection, subsampling, taxonomy and metric calculation must adhere exactly to the methodology found in the most recent revision of the State of Tennessee Department of Environment and Conservation, Division of Water Resources, Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys (referred to as TDEC QSSOP).

### **a. Habitat Assessment**

Appropriate habitat assessment forms will be completed concurrent with each biological survey. These forms can be found in Appendix B in the TDEC QSSOP. The High Gradient Form will be used in conjunction with riffle kick collections and the Low Gradient Form will be used in conjunction with rooted bank collections.

### **b. Macroinvertebrate Sample Collection**

A semi-quantitative single habitat macroinvertebrate sample will be collected at each site following Protocol G in the TDEC QSSOP.

In ecoregions 65j, 66d, 66e, 66f, 66g, 67f, 67g, 67h, 67i, 68a, 68b, 68c, 69d, 71e, 71f, 71g, 71h, appropriate 71i and 74a; 2 one meter square riffle kicks using a 500 micron mesh net will be collected. Additional kicks are collected if needed to insure at least 200 organisms. The debris from all kicks will be composited and preserved. All sorting and identification is to be conducted in the laboratory.

In ecoregions 65a, 65b, 65e, 65i, appropriate 71i, 73a and 74b; 3 rooted bank jabs will be collected using a 500 micron mesh triangular dip net. These are to include at least one jab from each bank, jabs from different velocities and incorporate different bank types when available. Approximately one meter is to be sampled during each jab. Additional banks jabs are collected if needed to insure at least 200 organisms. The debris from all jabs will be composited and preserved. All sorting and identification is to be conducted in the laboratory.

c. Subsampling

All samples will be reduced to 200+/- 20% organisms following subsampling protocols detailed in Protocol I of the TDEC QSSOP.

d. Taxonomy

All taxa in the subsample will be identified to genus level.

e. Biometrics

The following biometrics will be calculated for each subsample (without extrapolation).

- Taxa Richness (TR)
- EPT Richness (EPT)
- EPT Abundance (%EPT)
- Chironomidae and Oligochaeta Abundance (%OC)
- North Carolina Biotic Index (NCBI) using values found in Appendix C of the TDEC QSSOP
- Percent Contribution of Nutrient Tolerant Organisms (%NUTOL)
- Percent Clingers (%CLINGERS) using designations found in Appendix C of the TDEC QSSOP

**4. Station Information**

The following information will be recorded at each station during the biosurvey

- a. Water temperature (oC)
- b. Dissolved Oxygen (mg/l)
- c. pH (S.U.)
- d. Conductivity (umhos)
- e. Stream Flow (cfs)

**5. Reporting**

Results of the biological stream sampling including complete taxa lists and habitat assessments shall be submitted to each of the addresses listed below:

Division of Water Resources  
Nashville Environmental Field Office  
711 R.S. Gass Boulevard

Nashville, TN 37243

Division of Water Resources  
Attn: Water-Based Systems  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243-1102  
Division of Water Resources  
Attn: Planning & Standards Section  
William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243-1102

## **PART IV**

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### **STORM WATER POLLUTION PREVENTION PLAN**

The discharger will develop, document and maintain a storm water pollution prevention plan (SWPPP) pursuant to the requirements as set forth in the Tennessee Multi-Sector General Permit for Industrial Activities, Sector F, "Storm Water Discharges Associated With Industrial Activity From Primary Metals Facilities", Part 3, "Storm Water Pollution Prevention Plan Requirements", applicable to Primary Metals Facilities. The plan shall be signed by either a principal executive officer of a corporation, the owner or proprietor of a sole proprietorship, or a partner or general partner of a partnership. The SWPPP developed and implemented shall contain, in addition to the requirements listed in the Tennessee Multi-Sector SWPPP guidelines for Primary Metals Facilities, the following items:

#### **A. PLAN IMPLEMENTATION**

The plan should be developed and available for review within 30 days after permit coverage. Facilities should implement the management practices as soon as possible, but not later than one year after permit coverage. Where new construction is necessary to implement the management plan, a construction schedule should be included. Construction should be completed as soon as possible.

#### **B. PLAN AVAILABILITY**

The plan will be maintained by the discharger on the site or at a nearby office. Copies of the plan will be submitted to the Division of Water Resources within ten business days of any request.

#### **C. PLAN MODIFICATION**

The plan will be modified as required by the director of the Division of Water Resources.

#### **D. MONITORING PLAN**

The storm water discharges will be monitored as required in Part I. Section A., Effluent Limits and Monitoring Requirements, applicable to storm water outfalls. For each outfall monitored, the surface area and type of cover, for example, roof, pavement, grassy areas, gravel, will be identified.

## RATIONALE

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**Hemlock Semiconductor, L.L.C.**  
**NPDES PERMIT NO. TN0080888**  
**Clarksville, Montgomery County, Tennessee**

Permit Writer: Jim McAdoo

### I. DISCHARGER

Hemlock Semiconductor, L.L.C.  
1000 Solar Way  
Clarksville, Montgomery County, Tennessee  
Site Latitude: 36.624599 Longitude: -87.26198

**Official Contact Person:**

Mr. David Brandt  
Site Manager  
(931) 614-2319

**Nature of Business:**

production/manufacture of polycrystalline silicon from  
raw materials

**SIC Code(s): 3339**  
**Industrial Classification: Primary**  
**Discharger Rating: Major**

PRIMARY INDUSTRY CATEGORY means any industry category listed in the  
NRDC Settlement Agreement (Natural Resources Defense Council v. Train, 8  
ERC 2120 [D.D.C. 1976], modified 12 ERC 1833 [D.D.C. 1979]).

### II. PERMIT STATUS

**Issued December 01, 2009**  
**Expired May 31, 2014**  
**Application for renewal received November 04, 2013**

**Watershed Scheduling**

**Environmental Field Office: Nashville**  
**Primary Outfall Latitude: 36.624599 Longitude: -87.26198**  
**Hydrocode: 5130206 Watershed Group: 4**  
**Watershed Identification: Red**  
**Target Reissuance Year: 2014**

### III. FACILITY DISCHARGES AND RECEIVING WATERS

This permit combines the previous NPDES permit, TN0080888 while incorporating and eliminating State Operating Permit, SOP-10015, and TMSP coverage, TNR058604.

Hemlock Semiconductor, L.L.C. (HSC) discharges noncontact cooling water, cooling tower blowdown, finishing and sawing wastewaters to Spring Creek at mile 7.9 storm water discharges from SW1-5 and spray irrigation system. Appendix 1 summarizes facility discharges and the receiving stream information for Outfall 001. The locations of the outfalls are as indicated below:

Outfall	Latitude	Longitude
001	36.6180	-87.2714
SW1 (P186)	36.6204	-87.2753
SW2 (P286)	36.6154	-87.2668
SW3 (P386)	36.6182	-87.2575
SW4 (P486)	36.6392	-87.2518
SW5 (P586)	36.6324	-87.270

### IV. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

The Standard Industrial Classification (SIC) code for HSC is 3339 (Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum). Process wastewater discharged through Outfall 001 is regulated by 40 CFR Part 421 - (Nonferrous Metals Manufacturing Point Source Category). However, 40 CFR Part 421 does not have a subpart for the production of polycrystalline silicon so there are no applicable effluent limitations guidelines.

Note that 40 CFR Part 469 (Part 469) does not apply to this facility. The division originally believed that Part 469, which applies to discharges resulting from the manufacture of electronic crystals, applied to this facility and developed anticipated effluent limitations based in part on the requirements of Part 469. However, upon further discussion with the applicant and review of the development document for Part 469, it was determined that HSC's activities did not fall under the regulation of Part 469. With respect to silicon crystals, the development document states: "The raw material used to produce silicon crystals is polycrystalline silicon. Reduction of purified trichlorosilane with hydrogen is the usual method for producing the high purity polycrystalline ("poly") silicon. Single crystals of silicon are then grown by the Czochralski method, the most common crystal growing technique for semiconductor crystals."

### V. PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

Appendix 2 lists the permit limitations and monitoring requirements as defined in the previous permit.

## **VI. HISTORICAL MONITORING AND INSPECTION**

The Hemlock Semiconductor, L.L.C. facility has not been commissioned, therefore it has not had either industrial or storm water discharges. During the previous permit term, HSC submitted the required Discharge Monitoring Reports (DMRs) and indicated no discharge for each report period.

Personnel from the Nashville Environmental Field Office did not perform an Compliance Evaluation Inspection (CEI) of the Hemlock Semiconductor, L.L.C. during the previous permit term.

## **VII. NEW PERMIT LIMITS AND MONITORING REQUIREMENTS**

The proposed new permit limits have been selected by determining a technology-based limit and evaluating if that limit protects the water quality of the receiving stream. If the technology-based limit would cause violations of water quality, the water quality-based limit is chosen. The technology-based limit is determined from EPA effluent limitations guidelines if applicable (see Part IV); or from State of Tennessee maximum effluent limits for effluent limited segments per Rule 0400-40-5-.08; or by way of operational and/or treatability data. Furthermore, effluent limitations in this permit must comply with any approved Total Maximum Daily Load (TMDL) studies. Appendix 5 lists all proposed effluent limitations and monitoring requirements to be included in the new permit. Note that in general, the term “anti-backsliding” refers to a statutory provision that prohibits the renewal, reissuance, or modification of an existing NPDES permit that contains effluents limits, permit conditions, or standards that are less stringent than those established in the previous permit.

## **VIII. PARAMETERS**

Effluent permit limits for metals and toxics were determined as shown in Appendix 2.

### **Flow**

Monitoring of flow quantifies the load of pollutants to the stream. Flow shall be reported in Million Gallons per Day (MGD) and monitored at the time of sample collection. The flow is measured by a totalizer.

### **Nitrite Plus Nitrate Nitrogen**

The 3.48 mg/l concentration, approximately equal to the average concentration measured in-stream associated with past agricultural runoff, during dry weather discharge and report during storm water discharges will be retained in this permit for discharges. The dry weather sample frequency is weekly while the wet sampling frequency is once for each qualifying rain event. The reported annual mass limit is calculated from the sum of the dry weather discharges and the all precipitation events.

### **Total Phosphorus**

In the Addendum to Rationale for the previous permit, the estimated historical phosphorus loading from the site ranges from 2,596 lbs/yr to 33,837 lbs/yr. The estimated

historical nitrogen loading from the site ranges from 3,945 lbs/yr to 17,475 lbs/yr. Using these estimated historical loadings, the division chose the conservative estimates of 2,596 lbs/yr for total phosphorus and 3,945 lbs/yr for nitrates (nitrite plus nitrate nitrogen) as the allowable loadings for the facility as these loadings would not stimulate aquatic plant growth. If the nutrient loadings on the receiving stream remain at historical levels, aquatic plant growth may be supported at its current level of growth, but the nutrient loadings will not be greater than historical loadings and therefore there is not a stimulation of additional aquatic plant growth.

The applicant has stated in their previous application that their proposed phosphorus loading is 2,555 lbs per year. As such, the division is reduced the allowable annual loading for total phosphorus from 2,596 lbs to 2,555 lbs. This decrease of allowable loading should help ensure that the permittee does not discharge total phosphorus in amounts that would stimulate aquatic plant growth.

The 0.04 mg/l concentration discharge limit for dry weather and reporting the concentration from storm water discharges will be retained from the previous permit.

#### **Total Dissolved Solids**

The concentration limit of 291 mg/l, from the eco-region 71e referenced in the previous permit, for dry weather discharges and report for storm water discharges will be retained. The dry weather sample frequency is weekly while the wet sampling frequency is once for each qualifying rain event. The reported annual mass limit is calculated from the sum of the dry weather discharges and the all precipitation events.

#### **Total Suspended Solids (TSS)**

Total Suspended Solids is a general indicator of the quality of a wastewater and will be limited in this permit. The State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life [Chapter 0400-40-3-.03(3) (c)] state there shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life in the receiving stream. Report only will be retained for this grab sample type.

#### **Dissolved oxygen (DO)**

The dissolved oxygen (D.O.) effluent limitation of 1.0 mg/L is being set as a practical limit rather than a water-quality based limit necessary to protect fish and aquatic life. A minimum oxygen level of 1.0 mg/L is necessary to prevent nuisance conditions associated with anaerobic conditions. Sample frequency will be set at 5 Days/Week.

#### **pH**

According to the State of Tennessee Water Quality Standards [Chapter 0400-40-3-.03(3) (b)], the pH for the protection of Fish and Aquatic Life shall lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24-hours. Considering that the receiving stream will provide some buffering capacity, effluent limitation for pH will be retained in a range 6.0 to 9.0. The sample type will be grab.



### **Total Residual Chlorine**

Tennessee water quality criteria for the fish and aquatic life use establish a criterion maximum concentration of 0.019 mg/L and a criterion continuous concentration of 0.011 mg/L for Total Residual Chlorine (TRC). The new limits are based on the TN Water Quality Standards applied to a low flow stream condition of 2.1 MGD. The background concentration of TRC is assumed to be 0.0 mg/L.

Based on a daily flow of 0.66 MGD, the calculated effluent quality to meet the criterion continuous concentration in the stream is 0.047 mg/L and to meet the criterion maximum concentration in the stream is 0.08 mg/L, see Appendix 2. The permit writer is selecting the water quality limit of 0.046 mg/L as a monthly average concentration and 0.08 mg/L as a daily maximum concentration. Sample frequency will be set at 5 Days/Week.

The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/L unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit limit.

### **Effluent Temperature**

Temperature will be limited according to the State of Tennessee Water Quality Standards for the protection of Fish & Aquatic Life [Chapter 1200-4-3-.03(3)(e)]. It is recognized that the temperature of the cooling water discharge will be greater than the temperature of the water prior to its use for cooling or other purposes. This discharge must not cause the temperature change in receiving stream to exceed 3°C relative to an upstream control point. Also, this discharge must not cause the temperature of receiving stream to exceed 30.5°C (except as a result of natural causes), and this discharge must not cause the maximum rate of temperature change in receiving stream to exceed 2°C per hour (except as a result of natural causes). The temperature will be reported once per week.

## **VIII. BIOMONITORING REQUIREMENTS, CHRONIC**

The discharge of industrial wastewater from Outfall 001 may contain several different pollutants, the combined effect of which has a reasonable potential to be detrimental to fish and aquatic life. The Tennessee Water Quality Standards criteria stipulates that "*The waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions...*".

Since the permittee discharges to a stream with low critical flow conditions, there is a concern for toxicity effects of the discharge on the receiving stream, which is relatively unknown. Biomonitoring will provide information relative to the toxicity of the discharge. Calculation of toxicity limits is as follows:

$$DF = \frac{Q_s + Q_w}{Q_w} = \text{Dilution Factor}$$

where **Q<sub>w</sub>** is a wastewater flow (Q<sub>w</sub> = 0.66 MGD) and **Q<sub>s</sub>** is a receiving stream low flow (7Q10, estimated at 2.1 MGD). Please refer to Appendix 1 for details regarding facility discharge and receiving stream. Therefore,

$$DF = \frac{2.1 + 0.66}{0.66} = 4.2$$

Since the calculated dilution factor is less than 100:1, and assuming immediate and complete mixing, protection of the stream from chronic effects requires:

$$IWC \leq 1.0 \times IC_{25}; \text{ or,}$$

$$INHIBITION \text{ CONCENTRATION, } 25\% \geq IWC$$

Where IWC is Instream Waste Concentration and is calculated using the following formula:

$$IWC = \frac{Q_w}{Q_s + Q_w} \times 100 = \text{Instream Waste Concentration}$$

$$IWC = \frac{0.66}{2.1 + 0.66} \times 100 = 23.9$$

Therefore, WET testing will be required on 24% effluent. If toxicity is demonstrated in any of the effluent samples specified above, this will constitute a violation of this permit.

The toxicity tests specified herein shall be conducted once, within 180 days of effective date of this permit and polysilicon production at the facility. If the effluent does not exhibit any toxicity during the first test, WET testing will not be required during the term of this permit. If the WET testing does show toxicity of the effluent, toxicity tests specified herein shall be conducted annually from thereon for the duration of the permit.

## IX. ANTIDegradation

Tennessee's Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06. It is the purpose of Tennessee's standards to fully protect existing uses of all surface waters as established under the Act.

Stream determinations for this permit action are associated with the waterbody segment identified by the division as segment ID# TN05130206039\_0150.

The division has made a water quality assessment of the receiving waters associated with the subject discharge(s) and has found the receiving stream to be neither an exceptional nor outstanding national resource water.

Additionally, this water does not support Fish and Aquatic Life designated use due to Nitrite + Nitrate as N, Sedimentation/Siltation, Alteration in stream-side or littoral vegetative

covers, Phosphorus (Total). The discharge from Outfall 001 consisting of non-contact cooling water, cooling tower blowdown, waste water from the finishing and sawing area from the manufacturing of polycrystalline silicon is not expected to contain significant amounts of these effluent characteristics.

Similarly, the discharge of nutrients (nitrates and total phosphorus) from Outfall 001 is being permitted to mimics previous agricultural runoff and therefore it will not increase the loading of nutrients to the stream from this site.

No TMDLs has been developed and approved for this waterbody segment.

#### **X. PERMIT DURATION**

The proposed limitations meet the requirements of Section 301(b)(2)(A), (C), (D), (E), and (F) of the Clean Water Act as amended. It is the intent of the division to organize the future issuance and expiration of this particular permit such that other permits located in the same watershed and group within the State of Tennessee will be set for issuance and expiration at the same time. In order to meet the target reissuance date for the Red watershed and following the directives for the Watershed Management Program initiated in January, 1996, the permit will be issued to expire in 2019.

## APPENDIX 1

### FACILITY DISCHARGES AND RECEIVING WATERS

FACILITY DISCHARGES AND RECEIVING WATERS																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #ffff00;">OUTFALL 001</th> </tr> <tr> <th style="background-color: #ffff00;">LATITUDE</th> <th style="background-color: #ffff00;">LONGITUDE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">36.624599</td> <td style="text-align: center;">-87.26198</td> </tr> </tbody> </table>					OUTFALL 001		LATITUDE	LONGITUDE	36.624599	-87.26198																			
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<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>																										
INDUSTRIAL	NAVIGATION																												
<p>Treatment: Chemical oxidation, chemical precipitation, sedimentation, aerated lagoons, flocculation, ammonia stripping</p> <p>* Reference: E-mail from Gerooge Law, USGS Tennessee Water Science Center June 2007.</p>																													

## APPENDIX 2

### METALS AND TOXICS CONSIDERATIONS

The following procedure is used to calculate the allowable instream concentrations for pass-through guidelines and permit limitations.

- a. The most recent background conditions of the receiving stream segment are compiled. This information includes:
  - \* 7Q10 of receiving stream ( 2.1 MGD, USGS)
  - \* Calcium hardness (25 mg/l, default)
  - \* Total suspended solids (10 mg/l, default)
  - \* Background metals concentrations (0 mg/l, default)
  - \* Other dischargers impacting this segment (none)
  - \* Downstream water supplies, if applicable
- b. The chronic water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel and zinc. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions.
- c. The acute water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel, zinc and silver. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions for the following metals: cadmium, copper, lead, nickel and silver.
- d. The resulting allowable trivalent and hexavalent chromium concentrations are compared with the effluent values characterized as total chromium on permit applications. If reported total chromium exceeds an allowable trivalent or hexavalent chromium value, then the calculated value will be applied in the permit for that form of chromium unless additional effluent characterization is received to demonstrate reasonable potential does not exist to violate the applicable state water quality criteria for chromium.
- e. A standard mass balance equation determines the total allowable concentration (permit limit) for each pollutant. This equation also includes a percent stream allocation of no more than 90%.

The following formulas are used to evaluate water quality protection:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

where:

Cm = resulting in-stream concentration after mixing  
Cw = concentration of pollutant in wastewater  
Cs = stream background concentration  
Qw = wastewater flow  
Qs = stream low flow

**to protect water quality:**

$$C_w \leq \frac{(S_A) [C_m (Q_s + Q_w) - Q_s C_s]}{Q_w}$$

where (S<sub>A</sub>) is the percent "Stream Allocation".

Calculations for this permit have been done using a standardized spreadsheet, titled "Water Quality Based Effluent Calculations." Division policy dictates the following procedures in establishing these permit limits:

1. The critical low flow values are determined using USGS data:

Fish and Aquatic Life Protection

7Q10 - Low flow under natural conditions

1Q10 - Regulated low flow conditions

Other than Fish and Aquatic Life Protection

30Q2 - Low flow under natural conditions

2. Fish & Aquatic Life water quality criteria for certain Metals are developed through application of hardness dependent equations. These criteria are combined with dissolved fraction methodologies in order to formulate the final effluent concentrations.
3. For criteria that are hardness dependent, chronic and acute concentrations are based on a Hardness of 25 mg/L and Total Suspended Solids (TSS) of 10 mg/L unless STORET or Water Supply intake data substantiate a different value. Minimum and maximum limits on the hardness value used for water quality calculations are 25 mg/L and 400 mg/L respectively. The minimum limit on the TSS value used for water quality calculations is 10 mg/L.
4. Background concentrations are determined from the division database, results of sampling obtained from the permittee, and/or obtained from nearby stream sampling data. If this background data is not sufficient, one-half of the chronic "In-stream Allowable" water quality criteria for fish and aquatic life is used. If the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, then the measured background concentration is used in lieu of the chronic "In-stream Allowable" water quality criteria for the purpose of calculating the appropriate effluent limitation (C<sub>w</sub>). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the industrial source water is not the receiving stream. Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable"

water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

The spreadsheet has fifteen (15) data columns, all of which may not be applicable to any particular characteristic constituent of the discharge. A description of each column is as follows:

**Column 1:** The "Stream Background" concentrations of the effluent characteristics.

**Column 2:** The "Chronic" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Continuous Concentration (CCC) is calculated using the equation:

$$CCC = (\exp \{ m_C [ \ln (\text{stream hardness}) ] + b_C \} ) (CCF)$$

CCF = Chronic Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent; no chronic criterion exists for silver. Published criteria are used for non-metal parameters.

**Column 3:** The "Acute" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, silver, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Maximum Concentration (CMC) is calculated using the equation:

$$CMC = (\exp \{ m_A [ \ln (\text{stream hardness}) ] + b_A \} ) (ACF)$$

ACF = Acute Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent. Published criteria are used for non-metal parameters.

**Column 4:** The "Fraction Dissolved" converts the value for dissolved metal at laboratory conditions (columns 2 & 3) to total recoverable metal at in-stream ambient conditions (columns 5 & 6). This factor is calculated using the linear partition coefficients found in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996) and the equation:

$$\frac{C_{\text{diss}}}{C_{\text{total}}} = \frac{1}{1 + \{ [K_{\text{po}}] [\text{ss}]^{(1+a)} [10^{-6}] \}}$$

ss = in-stream suspended solids concentration [mg/l]

Linear partition coefficients for streams are used for unregulated (7Q10) receiving waters, and linear partition coefficients for lakes are used for regulated (1Q10) receiving waters. For those parameters not in the dissolved form in columns 2 & 3 (and all non-metal parameters), a Translator of 1 is used.

**Column 5:** The "Chronic" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 2 by the value in column 4.

**Column 6:** The "Acute" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 3 by the value in column 4.

**Column 7:** The "Chronic" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the chronic limit.

**Column 8:** The "Acute" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the acute limit.

**Column 9:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Organism Consumption (Recreation).

**Column 10:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Water and Organism Consumption. These criteria are only to be applied when the stream use classification for the receiving stream includes both "Recreation" and "Domestic Water Supply."

**Column 11:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Domestic Water Supply.

**Column 12:** The Calculated Effluent Concentration associated with Organism Consumption.

**Column 13:** The Calculated Effluent Concentration associated with Water and Organism Consumption.



**Column 14:** The Calculated Effluent Concentration associated with Domestic Water Supply.

The calculated chronic water quality effluent concentrations from Column 7 should be compared, individually, to the values calculated in Columns 12, 13, and 14 in order to determine the most stringent chronic permit limitations. The calculated acute water quality effluent concentrations from Column 8 should then be compared, individually, to values equal to two (2) times the values presented in Columns 12, 13, and 14 in order to determine the most stringent acute permit limitations. These water quality based limits should then be compared to any technology based (CFR or Tennessee "Rules") effluent limitations, and/or any previous permit limitations, for final determination of the permit limits.

<p align="center"><b>WATER QUALITY BASED CALCULATIONS FOR METALS AND OTHER TOXIC SUBSTANCES</b></p> <p align="center"><b>OUTFALL 001</b></p>
--

FACILITY: Hemlock Semiconductor LLC

PERMIT #: TN0080888

Stream (1Q10)	Stream (30Q5)	Waste Flow	Ttl. Susp. Solids	Hardness (as CaCO3)	Stream Allocation
[MGD]	[MGD]	[MGD]	[mg/l]	[mg/l]	[%]
2.100	3.200	0.660	10	50	90

	1	2	3	4	5	6	7	8
	Stream Bckgrnd. Conc.	Fish/Aqua. Life Water Quality Criteria		Effluent Fraction Dissolved	Fish & Aquatic Life Water Quality Criteria (1Q10)			
EFFLUENT CHARACTERISTIC		Chronic	Acute		In-Stream Allowable		Calc. Effluent Concentration	
	[ug/l]	[ug/l]	[ug/l]	[Fraction]	[ug/l]	[ug/l]	[ug/l]	[ug/l]
	Chlorine (T. Res.)	0.000	11.000	19.000	1.000	11.000	19.000	46.0

	9	10	11	12	13	14
	Human Health Water Quality Criteria (30Q5)					
	In-Stream Criteria			Calc. Effluent Concentration		
EFFLUENT CHARACTERISTIC	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS
	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]
Chlorine (T. Res.)	NA	NA	NA	NA	NA	NA

NOTE: Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

NOTE: Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

## APPENDIX 3

### PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

PERMIT LIMITS						
OUTFALL 001 Process Wastewater						
EFFLUENT CHARACTERISTIC	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
	MONTHLY		DAILY		MSRMNT. FRQNCY.	SAMPLE TYPE
	AVG. CONC. (mg/l)	AVG. AMNT. (lb/day)	MAX. CONC. (mg/l)	MAX. AMNT. (lb/day)		
Chlorine, Total Residual (TRC) <sup>1, 2</sup>	0.047	--	0.08	--	5 Days/Week <sup>3</sup>	Grab
Dissolved Oxygen (D.O.)	--	--	1.0	--	5 Days/Week <sup>3</sup>	Grab
Flow <sup>4</sup>	Report (MGD)		Report (MGD)		Daily	Totalizer
Nitrite Plus Nitrate Nitrogen (Nitrates) - dry weather <sup>5</sup>	Report	Report	3.48	Report	1/Week	Composite
Nitrite Plus Nitrate Nitrogen (Nitrates) - wet weather <sup>5</sup>	Report	Report	--	--	Each Qualifying Storm Event	Grab
Nitrite Plus Nitrate Nitrogen (Nitrates) <sup>5</sup>	3,945 lbs/year				Annually	Calculated
pH <sup>1</sup>	Range 6.0 - 9.0				1/Week	Grab
Phosphorus, Total (TP) - dry weather <sup>5</sup>	Report	Report	0.04	Report	1/Week	Composite
Phosphorus, Total (TP) - wet weather <sup>5</sup>	Report	Report	--	--	Each Qualifying Storm Event	Grab
Phosphorus, Total (TP) <sup>5</sup>	2,555 lbs/year				Annually	Calculated
Rainfall	Report (total inches/month)		--	--	Each Qualifying Storm Event	Calculated
Solids, Total Dissolved (TDS) - dry weather <sup>5</sup>	Report	Report	291	Report	1/Week	Composite
Solids, Total Dissolved (TDS) - wet weather <sup>5</sup>	Report	Report	--	--	Each Qualifying Storm Event	Grab
Temperature, Difference, between up and downstream °C	Report				1/Week	Grab
Temperature, Effluent	Report Effluent Temperature				1/Week	Grab
Temperature, Receiving Stream	Report				1/Week	Grab
Total Suspended Solids (TSS)	Report	--	Report	--	1/Week	Grab
IC25	Survival, Reproduction, & Growth in 24% Effluent				1/Permit Cycle <sup>6</sup>	Composite

<sup>1</sup> pH and TRC analyses shall be performed within fifteen minutes of sample collection.  
<sup>2</sup> The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit limit.  
<sup>3</sup> Measurements taken to meet the 5 Days/Week measurement frequency requirement shall be taken when facility is operational. If the facility shuts down operation for any given day for purposes other than cleaning, equipment maintenance/upgrades, etc. sampling on those days will not satisfy the requirements of this permit.  
<sup>4</sup> Flow shall be reported in Million Gallons per Day (MGD).  
<sup>5</sup> Discharges occurring on days without a qualifying storm event (see subpart I.C. for definition) must meet the calculated de minimis daily maximum concentration. Discharges released within 12 hours following a qualifying storm event must be monitored to determine the total loading discharged for each qualifying storm event. Total yearly loadings are the summation of the qualifying storm events plus the loadings from daily dry weather discharges and shall not exceed the effluent limitations provided in this table.  
<sup>6</sup> See subpart III.E. of this permit for Biomonitoring Requirements.

## APPENDIX 5

### NEW PERMIT LIMITS AND MONITORING REQUIREMENTS

#### New Permit Limits

Description : External Outfall, Number : 001, Monitoring : Dry Weather, Season : All Year

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
Nitrite plus nitrate total 1 det. (as N)	Report	-	lb/d	-	Weekly	Daily Maximum
Nitrite plus nitrate total 1 det. (as N)	Report	-	mg/L	-	Weekly	Monthly Average
Nitrite plus nitrate total 1 det. (as N)	Report	-	lb/d	-	Weekly	Monthly Average
Nitrite plus nitrate total 1 det. (as N)	<=	3.48	mg/L	-	Weekly	Daily Maximum
Phosphorus, total (as P)	Report	-	lb/d	-	Weekly	Daily Maximum
Phosphorus, total (as P)	Report	-	mg/L	-	Weekly	Monthly Average
Phosphorus, total (as P)	Report	-	lb/d	-	Weekly	Monthly Average
Phosphorus, total (as P)	<=	.04	mg/L	-	Weekly	Daily Maximum
Total Dissolved Solids (TDS)	Report	-	mg/L	-	Weekly	Monthly Average
Total Dissolved Solids (TDS)	Report	-	lb/d	-	Weekly	Daily Maximum
Total Dissolved Solids (TDS)	Report	-	lb/d	-	Weekly	Monthly Average
Total Dissolved Solids (TDS)	<=	291	mg/L	-	Weekly	Daily Maximum

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year

Parameter	Qualifier	Value	Unit	Sample Type	Frequency	Statistical Base
Chlorine, total residual (TRC)	<=	.08	mg/L	Grab	Five Per Week	Daily Maximum
Chlorine, total residual (TRC)	<=	.046	mg/L	Grab	Five Per Week	Monthly Average
Flow	Report	-	MGD	Totalizer	Daily	Monthly Average
Flow	Report	-	MGD	Totalizer	Daily	Daily Maximum
Oxygen, dissolved (DO)	<=	1	mg/L	Grab	Five Per Week	Daily Maximum
Temperature, water deg. C	Report	-	deg C	Grab	Weekly	Daily Maximum
Temperature, water deg. C	Report	-	deg C	Grab	Weekly	Monthly Average

Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Weekly	Daily Maximum
Total Suspended Solids (TSS)	Report	-	mg/L	Grab	Weekly	Monthly Average
pH	>=	6	SU	Grab	Weekly	Minimum
pH	<=	9	SU	Grab	Weekly	Maximum

**Description : External Outfall, Number : 001, Monitoring : See Comments, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Rainfall	Report	-	in	Calculated	Once Per Rain Event	Monthly Total

**Description : External Outfall, Number : 001, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Nitrite plus nitrate total 1 det. (as N)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Nitrite plus nitrate total 1 det. (as N)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average
Phosphorus, total (as P)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average
Phosphorus, total (as P)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Total Dissolved Solids (TDS)	Report	-	lb/d	Grab	Once Per Rain Event	Monthly Average
Total Dissolved Solids (TDS)	Report	-	mg/L	Grab	Once Per Rain Event	Monthly Average

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>=	24	%	-	Once Every Permit Cycle	Minimum
IC25 Static Renewal 7 Day Chronic Pimephales	>=	24	%	-	Once Every Permit Cycle	Minimum

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Nitrite plus nitrate total 1 det. (as N)	<=	3945	lb/yr	Calculated	Annual	Total
Phosphorus, total (as P)	<=	2555	lb/yr	Calculated	Annual	Total

**Description : External Outfalls, SW1, SW2, SW3, SW4, SW5, Monitoring : Wet Weather, Season : All Year**

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Floating solids or visible foam-visual	Report	-	Y=1;N=0	Visual	Once Per Rain Event	Daily Maximum